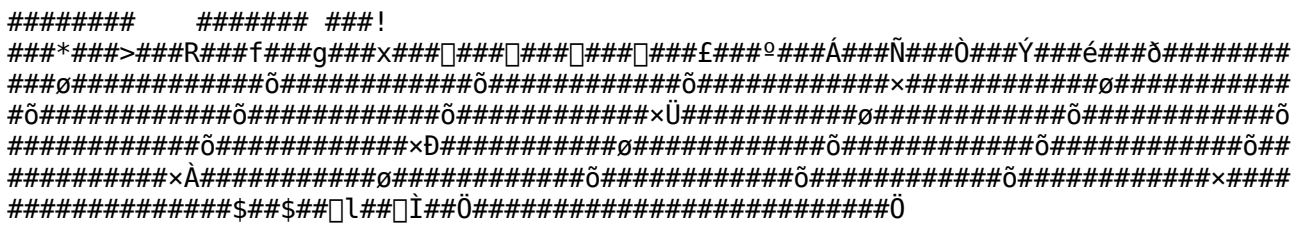

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compatible##Operating System#OS/MVS#OS/390 (POSIX)#OS/390
(POSIX)##DBMS#DatacommDB, Supra, DB2#Oracle#ANSI SQL, CORBA##Networking#SNA,
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#Standards-Based##Hardware#HP, AT&T, 486, Sun#HP, Sun, Pentium/Plus#HP, Sun,
Pentium/Plus##Operating System#HP/UX, SVR4, Solaris, SCO#HP/UX, Solaris,
NT#HP/UX, Solaris, NT##DBMS#Unify, Oracle#Oracle#ANSI SQL,
CORBA##Networking#TCP/IP, IPX/SPX, NT#TCP/IP, IPX/SPX, NT, WWW#TCP/IP, NT, DCE,
WWW##
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##################################################################Current#Target
#Standards-Based##Hardware#386, 486, Pentium#486,
Pentium#Pentium/Plus##Operating System#DOS, Win 3.1, Win95, NT#Win95,
NT#NT##DBMS#None, Access#None, Access#ANSI SQL, CORBA##Networking#TCP/IP,
IPX/SPX, NT#TCP/IP, IPX/SPX, NT, WWW#TCP/IP, NT, DCE, WWW##
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###ÿÿ#####ÿ□#ÿÿd#########d#########f###Notes:Welcome to the Software Development Environments presentation.(Version as of 03/19/98.)

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########□###The Software Development Environments class describes some changes in DSDC developer tools and methods planned during the next two years.n

###ÿÿ#####ÿ□#ÿÿd#########d#########·###Notes:This class will cover changes that could happen within the next two years.Some of us will be affected more than others, but all of us need to know where DSDC is trying to go.ÿ

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#############To understand the changes
planned through the Capability Maturity Model Level 3 efforts.To understand a
few of the changes planned that reflect computer industry changes.To understand
the changes planned in response to the needs of DSDC and its customers.#
```

##########ÿ□#ÿÿd#########d#########%###Over the past few days, you have heard over and over about the Capability Maturity Model. You should know by now that DSDC needs to improve to CMM Level 3 in the next two years.DSDC is a player in a broad cross section of the Information Systems industry. Our industry is in the midst of several generation changes that will affect us.DSDC is a small cog in the larger machines of DLA and DoD. Our past practices have led us into some problems with Software Development Environment methods and tools. We need to change to fix the problems.N

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########à###PPMT - Project Planning
Management ToolCMS - Configuration Management SystemSQA - Software Quality
AssuranceSubcontractor ManagementDLA Project Development Plan (PDP) Process for
predicting business beyond current orders
```

##########ÿ□#ÿÿd#########d#########Ò###You have hear separate presentations on all but the last one in this list of changes.DSDC is trying to bring back the Project Development Plan because at least some of our customers do let us know their spending plans for several years at a time. The PDP process worked to split these spending plans against our organizational structure. This long term planning is useful to the vertical organizations in laying out plans for training, subcontracting and tools.

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########¬###Organization Process Focus
Organization Process DefinitionTraining ProgramIntergroup CoordinationPeer
ReviewsIntegrated Software ManagementSoftware Product Engineering
```

###ÿÿ#####ÿ□#ÿÿd#########d#########À###You should recognize this list as the Key Process Areas for CMM Level 3. We are going to concentrate on the last item on the list because it has the most effects for software developers.

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########¥###Covers most requirements development and product development dutiesIncludes many new ways of doing the workGoals emphasize definition, integration, and consistencyÿ

##########ÿ□#ÿÿd#########d#############Software product engineering covers most of the DSDC-R and DSDC-P duties. It also includes some duties of other vertical organizations. For example, DSDC-S and DSDC-T have their own software product engineering efforts.SPE includes using sophisticated tools and setting up a variety of development environments.The SPE goals include defining the tasks precisely, integrating the products produced into effective systems, and keeping the products in each AIS consistent as a service to the customers and to the developers.ÿ

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########ý###Support the warfighter and the
peacekeeperCommon Operating Environment (COE)Emphasis on operational issuesUse
Commercial StandardsGraphical User Interfaces (GUI)3-Tier Client/ServerLess
Dependence on a Specific Person, #   More Reliance on Processÿ
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##########ÿ□#ÿÿd#########d#########í###This slide emphasizes some ideas that are behind the facts presented today.Why does DLA exist? ... The main reason is to support the warfighter. Between wars we can also support peacekeepers. The Common Operating Environment has been proposed by DISA and adopted by the services as a standard for delivering Information Services to the warfighter of the future. Operational issues are very important when supporting the warfighter. Getting the functional requirements satisfied is only a small fraction of getting the system requirements satisfied.Commercial standards are important because they let DoD reduce costs.   Does anyone remember what we had before GUIs? (character interfaces)   Three tier Client Server refers to using separate computers for presentation logic, application logic, and large shared data bases.DSDC has had a process for many years that assumed each piece of software would be supported by one person for its entire life cycle. Now DSDC processes need to reflect the fact that we have to transition support from person to person much more often . The emphasis is on a process so a new person can get up to speed in a relatively short time. This new process will be much less efficient in many ways, especially at first.ÿ

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########ð###COE □Minimum Workstation□ 133 MHz Pentium processor(s)32MB RAM, 1.2 GB Hard Drive, 2 MB Video RAM8X CD-ROM, PCMCIA, LAN connection, 1.44 MB Floppy DriveOptional support for portable workstations, hardcopy, sound, and other technologies

##########ÿ□#ÿÿd#########d#########2###COE workstations are better than what most of us have. How many have 133 MHz versus 75 or 100? How many have 32 MB RAM rather than 16 or even less? How many have 8X CD-ROM rather than 6 or less? 2 MB Video RAM gives lots more colors than the 1 MB many of us have. The other devices are pretty common. There are thousands of users who have portable workstations, so we need to design for them sometimes. Sound might be something you want to consider for training users on-line.PCMCIA is that little slot in your system unit that you may have wondered about. It is there in case you have to handle classified material like Confidential, Secret, or Top Secret. We have never done much about security levels like that.By the way, why do we need security at all? (Mostly to keep the hackers from messing up our inventory and financial records.)   What classification covers most of what we do? ... (Unclassified but sensitive).   The Orange Book says that that means we have to obey the C2 security rules.   What is the Orange Book? ... (The official standard for using computer systems for various classification levels)   C2 mostly means that we have to use valid login identifiers and passwords to control permissions and leave tracks whenever we use a system. It also has some other meanings that will come up later.

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########n###Choices based on open systems
SQL standardODBC compliantFully relational schemaSupport for two phase commit
```

##########ÿ□#ÿÿd#########d#########o###The technology that sets information systems apart from embedded systems and other kinds of systems is the use of data bases. The main consideration in picking commercial data bases is that they are open systems. Mostly that means they support Structured Query Language. SQL or □sequel□ is now an ANSI standard and version 2 is available. Microsoft provided a de facto standard with its Open Data Base Connectivity specification. ODBC has resulted in many software tools that work with various data bases. Thus anyone who does not support it should be avoided.What does relational mean? ... (Uses tables.) In these tables the columns are for fields and the rows are considered records. Relational also means that keys are available to search for records.Two phase commit is a technique for letting data bases on separate machines stay in sync. Phase one is used to make reservations for a combination of changes that need to be done as one transaction, all or nothing. Phase two then does the actual changes. It turns out that this simple convention provides everything needed to keep any number of data bases in sync.ÿ

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########ä###Choices based on Operational RequirementsHigh reliability, availability, and maintainability (RAM)Backups during operationsSchema changes during operationsSupport for RAID storage units Automated monitoringSecurity features

##########ÿ□#ÿÿd#########d#########Y###Our little flier has the motto 7 by 24 or some would say it 24 by 7. What does that mean? ... (7 days per week, 24 hours per day)   What is the schedule for warfighters? ... (7 by 24) Thus many operational requirements focus on reliability (how often does it break, measured by Mean Time Between Failures), availability (what percent of the time is the system available for regular work), and maintainability (how long does it take to fix it, measured by Mean Time To Repair). There are no perfect systems, but the customer needs to decide which of these things are important and how much they are worth.We used to take systems down to do backups every night and now we can do them during operations. One recent schema change done by DSDC had the system down for three days. The most common causes of computer system failure include power failures, air conditioning failures and after that disk crashes. Software is only affected by most failures.in the sense that restarts need to be designed into routine testing. Redundant Arrays of Inexpensive Disks can be used to make disk crashes less serious, but the operational software has to support such devices. Automatic Monitoring is available for data bases just like it is for networks, hosts and other important resources. Many of the hard parts of security can also be implemented through the data base.

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##########ÿ□#ÿÿd#########d##########□###Most customers are very concerned that their applications go fast, so here are some data base features that improve performance.Most modern data base management systems support multiple processors operating in parallel. Systems with 4, 6 or 8 processors are common now and systems with 30 or more are being tested.Normalization of transaction data calls for one copy of the data to be put on the data base. Summary data elements are then recomputed each time they are needed. That turns out to be too slow for many applications, so data base administrators need to set up tables that support summary data elements. They also need to support views, that is, automatic combinations of data from separate tables.The picture shows that data can be copied from one system to another. That copying is officially called replication. It is useful to improve access. The replication can be immediate or just periodic like every two hours or every day. How much replication is needed depends on the operational requirements. At the Atlanta Olympics, IBM installed over a dozen machines for the results data and still got complaints about slow performance.ì

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########t###Choices based on Functional
RequirementsLoading utilities and other tools provided by vendorData warehousing
tools available Powerful ad hoc user tools like Cognos Powerplay and Impromptu
Data warehouse summaries can be drilled down to operational dataTriggers
technique to enforce business rules uniformlyCursors technique to simplify
expressions of business rules
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##########ÿ□#ÿÿd#########d#########a###Functional requirements also get help from data bases.Developers should generally try to use the loading utilities and other tools provided by the data base vendor. The performance advantages of custom loading software over utilities are usually not worth the price of development and maintenance of the software.When the customer wants to analyze data over a period of time to check for trends or exceptions, the appropriate tool is called a data warehouse or a data mart. Once the data is in place, there are powerful ad hoc tools available at moderate prices. Cognos Powerplay and Impromptu are mentioned here because people in DSDC are already using them. One of the analytical techniques for looking at trends or exceptions is called drill down. The idea is to look at summaries first and then try to look at more and more detail until the reasons for the condition become clear. Another technique that is useful for data bases is automating the business rules. SQL needs to be supplemented with the triggers technique so that changes to one table can be checked against another table or can cause changes to another table. Both referential integrity and summary elements need to be carefully implemented. SQL is hard for many people because it is based on set theory and most people think of tables one record at a time. A cursor makes record logic practical.ÿ

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□ùÿÿ ###ÿÿ#####ÿ□#ÿÿd#########d#########,###SPE supports new requirements
tracking tools
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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########m###Integrated CASEBPWIN/ERWIN
Rochade and Emeraude RepositoriesUniversal Modeling LanguageDoD Data Dictionarys

##########ÿ□#ÿÿd#########d#########þ###Software Process Engineering is more than data bases.Integrated Computer Aided Software Engineering allows requirements to be stored in models and expanded directly into code and executables.BPWIN is one of several tools that automates Structured Analysis Technique.ERWIN is one of several tools that automates Entity Relationship Attribute analysis techniques. Repositories are places to store requirements in such a way that they can be converted from tool to tool. Rochade and Emeraude are the products that are part of the current experiments. Other repository products have come on the market recently and may overtake these products.The Universal Modeling Language is an emerging technology for putting requirements into repositories.The DoD Data Dictionary consolidates the schemas and ERA results from various government organizations. It is very helpful in defining interfaces.   There is also a policy that common data element names should be used whenever different groups share the same data element.

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elicitation tools#
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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########□###JAD sessionsInterview training
PrototypingFunction PointsIterative Life CycleDoD 5000 documentation
requirements (more on this later)r

###ÿÿ#####ÿ□#ÿÿd#########d#########□###Getting new requirements written down is very hard. It is probably the hardest job in DLA. We at DSDC can help our customers with some of our tools.Joint Application Development or Joint Application Design is a technique where customers, users, developers and other interested parties get together in a facilitated session to hammer out a clear statement of the requirements. Usually it takes a couple of weeks for a major new application.Requirements people need to do interviews often, so they need training.What is the problem with prototyping? ... (they get implemented) Use prototypes only with customers who have discipline or do it defensively such as for only part of the system.Function Points shows the way to good requirements. If you know enough about an application to measure function points, you know most of the functional requirements. Iterative Life Cycles are a way to get better requirements. Many people have limited vision so producing part of a system may help them see the remainder of the system better.DoD 5000 has good lists of questions and encourages people to work together on Integrated Product Teams. More later.

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□ùÿÿ ###ÿÿ#####ÿ□#ÿÿd#########d#########,###SPE supports new analysis and design methods

##########ÿ#ÿÿd#########d#########<###Analysis and design are the next step in software development.Domain Analysis means looking to see what the customer already has and is familiar with. If a design can build on new applications to look and feel like existing applications, they are much easier to put into place Information Engineering has two main ideas that I want to talk about. First is that Entity Relationship Attribute analysis should be one of the first activities. When the proposed tables are know and the routine operations on those tables are provided for, then the remaining functionality can usually be identified relatively quickly. Second is using the CRUD matrix. C = create, R = read, U = update, D = delete. These are variations of the SQL operations (create=insert, read=select). The matrix has a row for each program and a column for each table. The cells are filled in as to whether the program uses the table for a particular operation. If a row or column is blank, there needs to be an explanation. If a cell contains both C and D, it violates a C2 security rule.Object orientation is too complicated to get into here, but everyone in DSDC should know that it provides for applications that use graphics and applications that are executed on multiple computers.The other two ideas are done by specialists that should be on every project.

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      t#ÿÿ####ÿÿ#####ÿ#ÿÿd#########d#########m###Testing against functional
requirementsTesting against operational requirementsTest planningTest methods  l
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##########ÿ□#ÿÿd#########d#########ã###You will hear more about testing in the presentation this afternoon.Both functional and operational requirements must be tested.Tests must be planned.There are special tools and methods that make testing simpler and faster.M

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########b###Project Team membersParallel
with other activitiesFunctional Testing brings the players together

##########ÿ□#ÿÿd#########d#########Ù###Most software developers do not like to do documentation.   They put it off until last hoping that there will not be time enough.Documentation specialists need to be kept informed about project issues, but can save time by working in parallel with other activities.There are various help facilities, training manuals and product manuals that need to be coordinated.One way of specifying a functional test plan is to verify that the system implements its documentation.ÿ

##########ÿ#ÿÿd#########d#############Architecture begins with (1) strategic drivers that reflect business conditions, (2) a vision of the as is and to be models, and (3) a set of principles for addressing the business needs.The architecture is expressed from five points of view. The work flow is from the business management point of view and indicates where people touch the system. The business scenario is from the business office point of view and roughly a functional economic analysis plus considerations for process control. The application architecture is from the software development staff point of view and reflects how the business rules will be implemented. The information architecture is from the data administration point of view and reflects how information will be organized for effective storage and retrieval.All of these points of view will be expressed based on technologies that are available and affordable. The technologies themselves must be both sensible in their own right and interfaced to the other architecture aspects.#

###ÿÿ#####ÿ□#ÿÿd#########d#########À###How have [communications] changed in the last 10 years. processors workstations storage techniques software toolsWith all these changes, it is no wonder that DSDC has to change too.

##########ÿ#ÿÿd#########d#########Ú###On the mainframe, we will stay with IBM and the Plug compatibles such as Amdahl.For an operating system the megacenters are moving from OS/MVS to OS/390. POSIX is the international form of UNIX, so mainframes can run many of the same applications that open systems hosts can run.One of the problems now is too many data bases, but Oracle may or may not be the choice for the future. The things that are certain are that any DBMS we use will support SQL and that it will support the Common Object Request Broker Architecture. CORBA means that an application on a workstation can easily process data or schedule work on the mainframe.For networking, System Network Architecture (SNA) is being emulated by Transaction Control Protocol and Internet Protocol (TCP/IP), so special hardware is no longer required. All wide area communications can be done on the internet. Distributed Computing Environment provides a security package called Kerberos. In Greek mythology, Kerberos is the dog that guard Hades so the dead people can not get out and the live people can not get in. Kerberos works like an old fashioned county fair. The cashier hands out tickets, which the users spend to take the various rides. WWW is the world wide web.

##########ÿ□#ÿÿd#########d#########0###On the mid-tier, the good news is that we will finally get rid of the 3B2 hardware.Pentium/Plus is used here as a combination of Pentium, Pentium Pro, Pentium MMS, Pentium II, etc.For operating systems on Pentiums, NT is everywhere.Unify data bases will go away.Netware communications will go away.

##########ÿ□#ÿÿd#########d#########Ù###LAN Servers have been mostly a customer host up to now, but DSDC will have to be sensitive to them more and more as we get into Client/Server and E-Mail integrated applications.Here again NT is winning over Netware.#

##########ÿ□#ÿÿd#########d#########T###At the workstation, the move to NT will be held up by the hardware replacement costs. The current DLA schedules are for 3 to 5 years between upgrades. The industry cycles are now down to 18 months or less. With Microsoft Office, Access is a free database for workstations, so we can expect to have users want to keep local data on it.

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd########d#########□###Better Training is needed
Better Requirements Elicitation is neededBetter Architecture is neededBetter
Contracts are neededBetter Metrics are needed#
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##########ÿ□#ÿÿd#########d#########@###We will look now at some DSDC practices that need improvement.

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########□###Retooling DSDC employee skills is requiredLooking ahead 3 to 5 years is appropriateThe unit cost business model must be considered

##########ÿ□#ÿÿd#########d#########J###Fee for service hurt DSDC by making no provision for training over the last several years.Now nearly everyone needs retooled.The supervisors have been challenged to think about what training their people need for the next 3 to 5 years.The amount of training we can afford even now is limited by the unit cost business model.

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########Ò###The DSDC business plan includes strategies for trainingA survey of supervisors has baselined where we areRetooling needs must include all stakeholder skillsThe CMM Level 3 Training KPA provides some guidance

###ÿÿ#####ÿ□#ÿÿd#########d#########Ð###The DSDC business plan does include some training. The last estimate published was 120 hours per person per year.A survey of supervisors has already given the Executive Directors and the training staff more needs than there are funds this year.The customers and users also need some training so they know how to ask for our services.The CMM recognizes the need for an organized training program and the Training Key Process Area has guidance for how to do it.

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########□###Retool the IRM Workforce for
the Common Operating EnvironmentFocus on standards based architectureEmphasize
professional development
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##########ÿ□#ÿÿd#########d#########□###The first order of business in training is getting the whole workforce ready to use and support the Common Operating Environment.Standards are the best way to select tools that allow the business logic to be portable and easy to maintain. Professional development is training for the long term. Tools come and go, but knowledge can carry over from project to project through a lifetime.#

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########¬###New regulations will helpDoD
5000.2-RMIL-STD-498New models will helpSoftware Acquisition Capability Maturity
Model (SA-CMM)Working-Level Integrated Product Team (WIPT)
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##########ÿ□#ÿÿd#########d#########´###The new regulations will help with getting our customers to give good requirements. You have heard about both the DoD 5000 series and the MIL-STD-498 documents over and over this week.A new model for how to manage programs that are software-based is outlined in the Software Acquisition CMM.A new model for getting customers, users, developers and subcontractors working together is called the Working-Level Integrated Product Team.

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########□###Mission Need Statement (MNS)
Operational Requirements Document (ORD)Test and Evaluation Master Plan (TEMP)
Acquisition Program Baseline (APB)
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##########ÿ#ÿÿd#########d#############DoD 5000.2-R includes the WIPT, but it also specifies other information:the Mission Need Statement describes the problem and requires a cost benefit analysis.The Operational Requirements Document deals with the performance requirements such as availability, transaction times, and storage capacity.The Test and Evaluation Master Plan lays out how the testing will be done. The emphasis is on Operational Testing at field sites. You will cover that more in the presentation on testing.The Acquisition Program Baseline tells how the customer intends to spend their money. It includes rough schedules for both hardware and software deliveries.#

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###ÿÿ#####ÿ□#ÿÿd#########d#########Â###Many of the problems that DSDC has can be traced to having to support too wide a variety of systems software. Too many ...DSDC has an approved tool list from the DLA CIO, but more money for transitioning is needed to reduce the variety.Layering is a software technique where an interface is defined in such a way that software or hardware on either side of the interface can be expected to change without changing the interface. Reuse comes in two flavors. One is little units like the one for Cobol date calculations that can be reuse. The other is when some service or family of services is shared in terms of a high level component. The commercial software that does reuse at this level is often called middleware. The reuse may vary from domain to domain, but it can be very practical within a domain.We talked about the changes in the industry, but we will revisit that topic here to emphasize that systems need to be designed to allow the technology to be upgraded from time to time.How many use macros in Microsoft Office? Do you know why they are there? (they are designed to simplify testing) Every night a whole series of macros is run on the programs being changed to make sure they still work.

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########□###DLA Architecture Guidelines are availableConsidering a DSDC Design Review BoardWork proceeding toward a shared test laboratory

##########ÿ□#ÿÿd#########d#########[###The DLA CIO has published a set of technical constraints and standards called the DLA Architecture Guidelines. Design standards could be enforced through a DSDC Design Review Board. DSDC-P is considering such a board.The shared test laboratory may also be a big help here if we can charge the project for the test lab licenses on unique tools.À

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□ùÿÿ ###ÿÿ#####ÿ□#ÿÿd#########d#########9###Musts for Preferred Tools and Methods have been agreed to#

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########□###Must support the Common Operating EnvironmentMust reduce costs at DLA or equivalent levelMust support and include Configuration Management #

##########ÿ□#ÿÿd#########d#########¬###Preferred Tools and Methods must support the Common Operating Environment to support the warfighter.They must make economic sense at the DLA level. Right now that means purely cost reduction. They must support and include Configuration Management. It is just not acceptable for several software developers not to be able to work on the same program at the same time.Installation must also be straightforward and testable.

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d############Commitments back and forth with
CustomersVendorsSubcontractorsExecuting contracts often takes six months or more
Statements of work and other contract documents need to be preciseDSDC will
partner with Customers and subcontractorsDSDC needs to focus on our missionn
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##########ÿ□#ÿÿd#########d#########ñ###DSDC has contracts with customers, vendors and subcontractors.The difficulty is that executing them takes six months or more.In the case of subcontractors and vendors, the statements of work must be more precise than most of us are used to.The desire to partner with people by way of contracts is necessary but unfamiliar to us. We have always been encouraged to think in terms of being adversaries.Contracts can let DSDC focus on its mission.What is DSDC□s mission? ... (Perhaps Software Maintenance, Systems Integration, and Software Development). Hopefully, command and the Executive Directors can come up with a recommended balance of these activities as part of their goal setting activities. Customer demand will play a role as well.#

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########É###Interservice Support
Agreements allow DSDC to outsource services to other organizationsOutside
vendors are bidding for various servicesSpecial emphasis is needed on General
and Administrative efforts#
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##########ÿ#ÿÿd#########d##############Vendor contracts can be with other government organizations as well as commercial organization. One recent example is that DSCC provides the receptionist for the DSDC people in Columbus.The emphasis on reducing G&A costs is used by businesses of every kind these days.e

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#############Interservice Support Agreements indicate how Customers will be able to fund and how DSDC will be paid
Customer contract situations are each unique, so negotiations are required
Infrastructure and Standard Architecture support for DLA are being under control of the DLA CIO

##########ÿ#ÿÿd#########d######### ###Our customers need to agree to how they will work with us.Each customer will have unique needs which will require some negotiations.An act of congress calls for the Infrastructure and Standard Architecture support for our DLA customers to be under control of the DLA CIO. EDS uses a staff of about 15 to manage over 100 computer systems all across the United States. The thought is that DLA could save big money on system administration if it did the same. DSDC has offered to do this work for DLA. Customers used to doing system administration themselves are fighting to keep these jobs from being automated and consolidated, so this effort may not get very far.

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□ùÿÿ ###ÿÿ#####ÿ□#ÿÿd#########d#########5###Principles for Customer Contracts
have been agreed to#

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########Ç###DSDC wants to manage as many as possible of the Information Services and Information Technology programs for DLA Business agreements of various kinds aid in communication of roles and responsibility#

##########ÿ□#ÿÿd#########d##########?###Here are some principles for customer contracts that the Executive Directors have targeted.DSDC manages only $100M out of $600M-$700M that DLA spends on IS and IT. We want more.Business arrangements need to be put into Interservice Support Agreements so that roles and responsibilities can be clearly communicated.#

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□ùÿÿ ###ÿÿ#####ÿ□#ÿÿd#########d#########5###Principles for Customer Contracts
have been agreed toÿ

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########E###Customer partnerships are
critical for implementing   CMM Level 2 & 3t
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##########ÿ#ÿÿd#########d##############Another factor that has both encouraged and frightened us is the effects that customers can have on organizations trying for CMM Level 2 and 3. One obvious item is that if the customer refuses to sign up to system requirements, then requirements management will never succeed.ÿ

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      t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########8###Subcontractor changes were
covered in a previous session
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##########ÿ□#ÿÿd#########d#########Z###Subcontractor changes are now covered in another session but they are important to DSDC.

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########¾###The unit cost metric needs improvementDBOF currently doesn□t permit any other measurefitting the metric to the customer may resolve the problemsCMM Level 3 calls for management by metrics

##########ÿ□#ÿÿd#########d#########¥###The Unit Cost Metric has done more damage than good to DSDC.DSDC has attempted to change it, but the alternative methods put forward so far have been rejected for one reason or another.Some of our customers may let us work around the DoD rules on a project by project basis.CMM level 3 calls for management by metrics at the project level. More detailed metrics are critical to the two current KPAs at CMM level 4.#

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########□###Charges for services are being pricedA draft list of metrics is being circulatedThe principle of Value-based metrics is being explored

##########ÿ□#ÿÿd#########d#########þ###Some of the alternative proposals are as follows:Price our work by the service rendered like our subcontractors do. Include multiple metrics like some Service Bureaus do.Have the customer share some of the value they receive from use of our software.

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##########ÿ□#ÿÿd#########d######### ###Metrics that support billing are needed now and could allow DSDC to demonstrate its value to DLA customers in terms of our output rather than our input. Most businesses are measured by their output and we should be, too.On the internal management side, we need to measure our improvements.Productivity can be measured and best practices can be reused. Quality can be measured. Defect removal efficiency seems to be a favorite metric for justifying CMM Level 3.Risk can be managed and the results can be quantified.All of these metrics can be summed up in one. There is industry support for CMM level being the metric of choice with CMM Level 3 being the target.

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t#ÿÿ####ÿÿ#####ÿ□#ÿÿd#########d#########□###DSDC must get to Capability Maturity Model Level 3 DSDC will be affected by computer industry changes.DSDC needs to change to fulfill its mission#

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##########ÿ□#ÿÿd#########d#########ê###There are three things I want you to
remember from this presentation:1.  DSDC must be CMM Level 32.  DSDC will be
affected by industry changes3.  DSDC will need to change its business methods to
fulfill its mission.Thank you.
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